

I CLAIM:

1. An optical imaging system comprising:
a lens system simultaneously focusing light in both the 3-5 and 8-12
microwave spectral bands onto a single focal plane, wherein said lens system
5 includes:
a first, negative zinc sulfide lens,
a second, positive zinc selenide lens, and
a third, negative gallium arsenide lens,
each of said first through third lenses being positioned along a chief
10 ray and capable of simultaneous dual band imagery in both the 3-5 and 8-12
micrometer spectral bands; and
a detector, located at said single focal plane, capable of simultaneous
dual band imagery in both the 3-5 and 8-12 micrometer spectral bands.
2. An optical imaging system according to claim 1, wherein said
15 detector is a quantum well detector.
3. An optical imaging system according to claim 1, wherein said lens
system further includes:
a fourth, negative zinc sulfide lens,
a fifth, positive zinc selenide lens,
20 a sixth, negative gallium arsenide lens,
each of said first through sixth lenses being positioned along a chief
ray, said first through third and said fourth through sixth lenses forming two widely
spaced triplets.
4. An optical imaging system according to claim 3, wherein said two
25 widely spaced triplets form a Petzval-type lens.

5. An optical imaging system according to claim 3, wherein said lens system further includes a field flattener lens, and a cold shield diaphragm.

6. An optical imaging system according to claim 1, wherein at least one of said lenses has an aspheric surface.

5 7. An optical imaging system according to claim 6, wherein said aspheric surface is on said second zinc selenide lens.

8. An optical imaging system according to claim 3, wherein a surface on said fifth zinc selenide lens is aspheric.

9. An optical imaging system according to claim 3, wherein said lens system has the following basic lens data:

BASIC LENS DATA					
Surf.	Radius	Thickness	Medium		Refrac. Index
0	0.00000000	1.50000000 E+20	AIR		
1	0.00000000	-18.27594933	AIR		
2	7.28700000	0.33000000	MATL	C_ZnS	2.200833
3	4.64064000	0.06544000	AIR		
4	5.14400000	0.98000000	MATL	ZnSe	2.406485
5	-33.65800000	0.05074000	AIR		
6	-21.27500000	0.28000000	MATL	GaAs	3.277944
7	33.65800000	4.27000000	AIR		
6	21.27500000	0.30000000	MATL	C_ZnS	2.200833
9	7.05700000	0.22000000	AIR		
10	5.14400000	0.52500000	MATL	ZnSe	2.406485
11	0.00000000	0.21700000	AIR		
12	2.20300000	0.22500000	MATL	GaAs	3.277944
13	1.90900000	1.01703000	AIR		
14	0.00000000	0.08000000	MATL	ZnSe	2.406485
15	0.00000000	0.10000000	MATL		
16	0.00000000	2.50000000	AIR		
17	0.00000000	0.00000000	AIR		

ADD
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